

Lindane Summary

Uses

- Lindane is a broad spectrum insecticide registered for use as an agriculture, pre-plant seed treatment for the following 13 crops: barley, broccoli, Brussels sprouts, cabbage, cauliflower, corn, lettuce, oats, radishes, rye, sorghum, spinach, and wheat. The RED will also consider the pending registration for a new/additional crop - canola (seed treatment only as well).
- There are no homeowner uses nor any above ground uses.
- Seed treatment with lindane occurs mainly at seed treating facilities. Alternately it may be applied on farm prior to planting (< 5%).
- Application to seed occurs at a rate of 0.031 to 0.125 lbs of lindane / 100 lbs of seed. When the seeds are planted the maximum rate per acre is 0.04 lb. ai/acre.
- Up to 200,000 pounds of lindane treated seed are applied annually.

Health Effects

Acute dietary risk assessment is based primarily on neurotoxic effects. The chronic dietary risk assessment is based on liver, spleen, and blood effects.

- EPA currently is reviewing the carcinogenicity of lindane. In the past the Agency has classified Lindane as a B2/C (probable/possible human) carcinogen; however, the Agency is reviewing a new carcinogenicity study in mice that may change the cancer classification.

Risks

Dietary Risks are not of concern

- Acute and chronic dietary exposure are well below the Agency's level of concern for all population subgroups.
- Using limited data, the chronic dietary exposure of indigenous populations living on a subsistence diet is below the Agency's level of concern. An acute dietary assessment was not conducted due to a lack of data.

Drinking Water Risks are not of concern

- Acute and chronic concentrations in ground and surface water are low and not of concern.

There are no residential uses

Aggregate Risks are not of concern

- Acute and chronic risk from food and water results in exposures below the Agency's level of concern.

Worker Risks

- For the use under consideration for reregistration (seed treatment on 13 crops), only 1 of 5 worker exposure scenarios (the on farm mixing, loading, and application on seeds by workers) is of concern.
- With respect to the canola seed treatment proposed use, there are several worker exposure scenarios of concern, even using maximum personal protective equipment, including respirators.

Ecological Risks

- Based on modeling, EPA has acute and chronic risk concerns for terrestrial animals, and acute concerns for freshwater and estuarine animals.
- The Agency is uncertain about chronic risks to freshwater and estuarine animals due to a lack of data.
- Lindane is persistent and has been demonstrated to be transported atmospherically over long distances. There is uncertainty regarding ecological effects of Lindane in the Arctic region.

How the Risk Picture May Change

- EPA is currently reviewing a mouse cancer study. If the results of this study indicate a risk of concern, the Agency would need to re-evaluate the risks to workers and the general population from exposure to Lindane.